Cognitive Competency and Signalling Status
A Study of Cultural Participation in Comparative Perspective

NATASCHA NOTTEN[*] BRAM LANCEE[*‡] HERMAN VAN DE WERFHORST[*]

[*] *University of Amsterdam, Amsterdam Center of Inequality Studies*
[‡] *Social Science Research Center Berlin*

Abstract.

In this article we examine social stratification in cultural participation in seventeen countries, and test whether stratification occurs because of social differences in status that is achieved with cultural consumption, or whether differentiation results from differences in cognitive competencies. We focus on education, and argue that educational inequalities in participation in high culture may result from both status and cognitive processes. However, by filtering out cognitive skills, our analysis of IALS survey data demonstrates that the net status effect of education on cultural participation is reduced in societies with higher levels of educational expansion and intergenerational mobility. This is in line with the status perspective that holds that boundaries between educational groups become less visible, leading to a weaker 'status-marking' function of education. The relation between a person's cognitive skills and cultural participation is however unaffected by distributional variation in education, as the cognitive theory would predict.

Introduction

Previous research has shown that, worldwide, social status and educational qualifications are relevant predictors of a person's cultural consumption (e.g. Chan & Goldthorpe, 2007b). Studies on cultural participation have repeatedly shown the importance of a person's individual characteristics, and especially educational achievements, when it comes to differentiation in cultural participation (e.g Katz-Gerro, 1999). In other words, cultural behaviors and preferences (i.e. cultural resources) are highly stratified (e.g. Van Eijck, 2001; Chan & Goldthorpe, 2007a).

In cultural capital research there are two main, but contrasting arguments why social differentiation in cultural participation exists. The first hypothesis claims that cultural participation is predominantly a signal of social status. Along that line of argumentation, people come to appreciate particular forms of art because it expresses their belonging to a social group. This refers to Bourdieu's concept of embodied cultural capital (Bourdieu, 1986), which has been defined as "widely shared, legitimate culture made up of high status cultural signals used in direct or indirect social and cultural exclusion" (Lamont and Lareau, 1988). The second hypothesis predicts that cultural participation depends on a person's cognitive skills. According to the cognitive hypothesis, cultural consumption depends on the ability of the individual to process complex information (Ganzeboom, 1982). People with more cognitive skills therefore participate more in (complex) cultural activities, such as highbrow cultural events. Hence, cultural participation may vary across social groups for social distinctive reasons (i.e. status aspects), but also as a result of information processing capacities.

There is empirical evidence for both the status (Bourdieu, 1973; 1984; Chan & Goldthorpe, 2007a; Collins, 1979) and the cognitive hypothesis (De Graaf, De Graaf & Kraaykamp, 2000; Farkas, 1996; Ganzeboom, 1982, 1989). However, previous work analyses social differentiation in cultural participation by using educational attainment as a proxy for both the status and the cognitive argument (Ultee, Batenburg & Ganzeboom 1993). Or, alternatively, status has been explicitly linked to occupational position, whereas cognitive competencies are linked to educational attainment (Chan & Goldthorpe 2007a, 2007b; Ganzeboom 1982). Such a conceptualization neglects that educational attainment itself may be relevant because of social status and cognitive ability, and that the role of education may in fact differ between societies depending on the distribution of education. Moreover, existing research has not explicitly tested the cognitive explanation of cultural participation by incorporating measurements of cognitive skills in the empirical designs.

In this study, we try to better understand the educational differentiation in cultural participation by disentangling these two arguments. We do so by including a person's literacy skills in addition to their educational level in our analyses. When including a person's educational level and literacy simultaneously in our analyses, the net effect of a person's educational level then is assumed to represent status, whereas the cognitive explanation of education is captured by the skills measure. This approach is very similar to designs to assess the cognitive 'human

capital' explanation of why education is related to earnings. The proportional reduction in the effect of education after controlling for skills is said to represent the human capital component of education, whereas the remainder of the education effect is seen as a representation of non-human capital factors (Bowles & Gintis 2002; Barone & Van de Werfhorst 2011). We argue something similar; skills matter to the extent that the educational gradient in cultural participation is reduced by including a measure of literacy, whereas the remainder of the education effect is argued to be related to social factors unrelated to skills. Moreover, we further substantiate the social status and cognitive explanations by relating the net effect of skills and education to educational distributions in a country. From a status perspective, it is hypothesized that the net effect of education should be weaker in societies with a relatively high share of the population with higher-level qualifications, and in societies where intergenerational educational mobility is high. The status-marking element of education is reduced, we argue, if boundaries between social groups become more vague, as is illustrated by educational expansion and social mobility. From an information-processing perspective, however, the effect of measured literacy skills on participation should be unaffected by distributional variations in education. Using data on 43,730 individuals in 17 countries from the International Adult Literacy Survey (IALS), we found that visiting cultural performance and reading novels are more strongly stratified by education if educational expansion and social mobility are limited.

Theoretical background

Different dimensions, different theories

Within the cultural capital concept and regarding cultural participation, different dimensions of cultural activities and behaviors are distinguished. Cultural stratification research traditionally defines two broad distinctive dimensions of cultural capital or taste: highbrow and popular or lowbrow cultural participation (DiMaggio, 1987; Katz-Gerro, 2002, Lizardo, 2006, Van Eijck, 2001). Consuming high culture or fine arts, such as visiting classical concerts or ballet, confers more prestige, requires more cognitive skills than lowbrow cultural activities (e.g. reading comics, visiting fancy fairs), and is valued as a respected activity among the higher social strata. A popular cultural taste is more associated with entertainment, undemanding cultural content and

a lower social value. In this paper, we study cultural participation predominantly referring to highbrow elements, and we differentiate between visiting cultural performances and reading books. Precisely these two activities are found to represent both social status and cognitive aspects regarding cultural consumption (e.g. De Graaf, De Graaf & Kraaykamp, 2000; Chan & Goldthorpe, 2007a; Kraaykamp et al., 2007). Cultural outgoing behaviors are particularly appropriate to measure the social impact or value of a person's cultural dispositions, since they are observable social activities which demonstrate social boundaries in the public domain, related to a person's social network (Upright, 2004; Lizardo, 2006). Overall, cultural behaviors, like visiting ballet or concerts, are highly valued by the upper social strata, are related to a person' social network, have an exclusive audience and therefore relate to the concept of a more exclusive lifestyle and high social status (Lizardo, 2006, López-Sintas & Katz-Gerro, 2005). Participation in cultural events is also found to require a certain (higher) level of cognitive abilities and cultural competencies (Ganzeboom, 1982). Reading behavior, another aspect of cultural participation, also highly relates to a person's social status and cognitive competency. Although reading in general is an in-home activity and highly associated with cognitive competencies (Evans, 2010; Notten & Kraaykamp, 2010; Park, 2008), it creates or pins down social boundaries as well. For instance, by providing material for everyday conversation in social life (Chan & Goldthorpe, 2007a), which creates and maintains social relationships and networks (DiMaggio, 1987; Lizardo, 2006). Because of the cognitive character of reading as a leisure activity, scrutinizing the relation between education and a person's reading behavior might even provide more insight whether education is a proxy for status or information processing capacity compared to participation in cultural events.

Recent research acknowledges that cultural consumption is not so clearly demarcated between high-brow and low-brow repertoires (Katz-Gerro & Jaeger, 2011; Peterson, 2005; Chan & Goldthorpe, 2007b). The proportion of cultural omnivores, i.e. persons consuming both popular and highbrow cultural products, has been on the rise in the past decades, as well as the variety of their activities or preferences (Goldberg, 2011; Lena & Peterson, 1998).[1] Yet, highbrow activities are still a relevant part of the omnivore cultural consumer pattern, and

[1] Note that corroboration of the omnivore thesis has been found for musical taste (e.g. Peterson, 2005; Van Eijck, 2001), but not (as much) for the traditionally distinctive cultural activities such as visiting cultural performances and reading books.

consequently, the cultural omnivore is characterized by higher levels of educational attainment and occupational status (Katz-Gerro & Jaeger, 2011; Chan & Goldthorpe, 2007b). More highly educated persons simply have the competencies to participate in both types of activities, but it is the participation in more complex or elite cultural activities that distinguishes them from other (lower) social groups. Hence, cultural consumption has been shown to remain socially stratified and a signal of social status (Bennett et al., 2009; Katz-Gerro, 2002; Van Eijck, 2001), mainly because of the distinctive character of highbrow cultural activities. In recent decades, scholars suggest that highbrow cultural consumption is less popular and therefore less distinctive among the younger highly educated compared to the older ones ('the meltdown scenario') (Purhonen et al., 2011; DiMaggio and Mukhtar, 2004). We here may shed some more light on this process by studying the relation between education and cultural participation across societies with different distributions of central stratifying variables.

Cultural participation from a status perspective

According to cultural reproduction and lifestyle theory (Bourdieu, 1984; Bourdieu & Passeron, 1990), participation in high culture is mostly explained by the status it provides to people. People participate in cultural life mainly as an expression of their social status. Along that line of reasoning, people come to appreciate particular forms of fine art because it expresses their belonging to a group with a particular level and composition of capital (Bourdieu, 1973, 1984). By demonstrating a particular lifestyle, based on a person's access to scarce cultural and economic resources and interests, members of a status group confirm the existing social cleavages or rankings in society. From a Bourdieuian perspective, also referred to as the homology thesis, follows that specific cultural tastes relate closely to certain social positions.

In research on cultural consumption and cultural capital, measurements to capture the cultural capital concept may vary (see e.g. Lareau & Weininger, 2004; Yaish & Katz-Gerro, 2010). Traditionally, cultural capital research views cultural participation, mainly measured by participation in outdoor and rather exclusive cultural activities, as relevant elements of an individual's highbrow cultural resources, indicating a person's cultural capital. Empirical research on cultural capital predominantly elaborates on the concept of 'objectified' cultural capital, representing cultural routines and participation in cultural activities.

The highly educated, from a status point of view, participate in high culture because it signifies their belonging to the dominant group in society. Moreover, cultural reproduction and stratification research clearly points out that it is highbrow cultural participation that matters when it comes to status attainment and social mobility (Warde, 1994; Dumais & Warde, 2010). For the lower educated, participation in high culture will not (directly) improve their social status. Because of different tastes, group identity and pressure as well as status anxiety, individuals from the lower social groups are not often found among the audiences of cultural events like visiting theatre or musea (Bryson, 1996). Although the lifestyle of the economic elite may be perceived as desirable, the routines of the cultural elite appear not attractive to the lower social strata.

The status argument from a cross-national perspective

Most research on the status dimension of cultural participation is on the individual level. There is hardly any research that studies to what extent the relation between individual social background features and cultural participation varies across countries. However, according to Bourdieu's status-related arguments, social contexts are highly relevant in lifestyle choices, also regarding cultural behaviors. Previous work shows that different cultural consumption patterns exist, related to different social background characteristics in a range of different countries (e.g. Alderson, Junisbais & Heacock, 2007; Chan & Goldthorpe, 2007b; DiMaggio, 1997; Kraaykamp, Van Eijck, Ultee & Van Rees, 2007; Holt, 1997; Lamont, 1992; Purhonen et al., 2012; Ultee et al. 1993). These findings suggest that contextual characteristics are relevant in explaining variation in the association between education and cultural participation. In a context where social groups achieve less status by participation, because the boundaries between groups become faint, the status theory will lose its power to explain differentiation in participation. More specifically, the social differentiation in cultural consumption that can be attributed to status signalling is likely to vary with the level of educational expansion and social mobility in a country.

A higher share of highly educated people in societies implies a larger proportion of citizens belonging to the social group that potentially consumes high culture. Consequently, in these societies participation in high culture less evidently represents a socially distinctive lifestyle. In other words, from a status point of view, educational expansion is likely to result in a diminishing relation between educational level and cultural participation, at least if we are able to filter out the cognitive component of education. Research shows that, in the late eighties and

nineties, consumption of high culture is highly relevant as a status marker throughout the industrialized world (e.g. DiMaggio, 1987; Holt, 1997; Warde, Martens & Olsen, 1999). However, in the current postindustrial or information-based society, where high culture is widely available and education has expanded, the social status that high culture provides may be under pressure. As a consequence, in societies with lower levels of dispersions in educational attainment due to expansion (i.e. lower inequality; Rijken 1999; Featherman & Hauser 1976), it might be harder to distinguish oneself by means of cultural consumption. To the extent that cultural participation is an expression of social status, one would expect educational differentiation in cultural participation to be less pronounced in countries where status considerations relating to education are less important, certainly when relevant cognitive factors are taken into account. Additionally, in highly educated societies, other social boundaries or distinctions may arise, for instance, based on 'individualized consumption'. Such boundaries are no longer or significantly less related to the traditional social hierarchy and educational achievements (Beck, 1992; Castells 1996, Erickson, 1996; Katz-Gerro, 2002; Lizardo, 2007; Peterson & Kern, 1996; Katz-Gerro & Jaeger, 2011).

Besides educational expansion, also social mobility is likely to affect the way education stratifies participation in cultural activities (Beck, 1992; DiMaggio 1987). Given that lower dispersions in educational attainment and large proportions of highly educated may be particularly found in societies with high levels of social mobility, many of the highly educated may not feel the need or incentive to emphasize their status position (e.g. Erikson and Jonsson, 1996; Heath, 1995). A high level of intergenerational educational mobility implies that large groups of highly educated individuals have not been raised in highly educated environments. Therefore, educational attainment less evidently represents an enduring, persistent form of stratification between status groups (Ultee et al., 1993). More generally, reduced associations between the level of education of parents and children are indicative of the 'openness' of societies (Lipset & Bendix, 1959). In more open societies, it can be maintained, boundaries between educational levels are less apparent, so that cultural participation as a status marker has become less evidently the terrain of the well-educated. The lower status gains achieved by cultural participation are then further reinforced by the increased heterogeneity of the highly educated. Upwardly mobile people generally lack the cultural socialization highly relevant for

developing a highbrow cultural taste (see also the "elitist rearguard hypothesis") (Knulst, 1992; Van Eijck & Knulst, 2005; Van Eijck, 1999).

Hence social mobility, and more specific educational mobility, results in more open societies where (highbrow) cultural participation is less evidently part of the 'status repertoire' of one particular social group. Consequently, high levels of social mobility are likely to wear down prestige differences between different forms of cultural participation (DiMaggio, 1987), resulting in a reduced correlation between education and cultural participation (Ultee et al., 1993; Van Eijck, 1999).[2] Participation in high culture may therefore no longer function as a symbolic boundary and significant tool in the process of social stratification and cultural reproduction. Note that we take account of a person's educational level *and* literacy (i.e. cognitive) skills, so that the net effect of a person's educational level is assumed to represent status aspects.

Following the status theory, we would hence expect the following:

H1: *Higher levels of educational expansion are associated with smaller net effects of educational level on cultural participation, once literacy is controlled*

H2: *Higher levels of intergenerational educational mobility are associated with smaller net effects of educational level on cultural participation, once literacy is controlled*.

Cultural participation from a cognitive perspective

Although the status perspective related to cultural consumption is widely acknowledged, there are also scholars who argue that education represents a person's cognitive capacity rather than that it functions as a marker of social status. This viewpoint is in line with the neoclassical economic understanding of education (Becker, 1996), and in particular information processing theory (Scitovsky 1976; Ganzeboom 1982), which assumes educational level to be a proxy for a person's information processing capacities. According to information processing theory, education is related to cultural participation because different levels of education are associated to distinct cognitive competencies. The higher a person's information processing competency, the more (complex) information the participated cultural activity must provide in order to satisfy a

[2] There are contrasting viewpoints on this issue; due to a lack of cultural socialization the socially upwards mobile may be less culturally active or overdoing their participation in high culture due to status anxiety and status maximization (Van Eijck, 1999). We think the latter is less likely or common.

person's (cognitive) needs and to provide pleasure or fulfillment. Hence, people choose to participate in the cultural activities that fit their cognitive competencies best (Farkas, 1996; Ganzeboom, 1982). Following the cognitive perspective, highbrow cultural participation occurs because of the (higher) level of information these highbrow cultural activities provide. Since education is a proxy for a person's level of information processing abilities, people with higher levels of education participate more in highbrow cultural events. So, from this cognitive perspective, a person's educational level relates to a specific form of cultural participation, not because of the status benefits this cultural activity may generate or express, but merely because of the information processing competencies it requires. Cultural participation occurs because of the level of information these specific cultural activities provide. Indeed, cognitive aspects have been found highly relevant in understanding the relation between education and cultural activities (e.g. Farkas, 1996; Purhonen et al., 2011).

The cognitive argument from a cross-national perspective

On the societal level, and reasoning from information processing theory, cultural participation likely becomes more widespread in nations with a higher proportion of highly educated citizens. Due to educational expansion and educational mobility, highbrow or elite cultural activities are more accessible for a broader audience, as in a larger proportion of the population. There are simply more people who have the status incentives and/or cognitive competencies to enjoy cultural activities. However, a country's level of educational expansion and educational mobility do not necessarily affect the *association* between educational achievements and cultural participation on the individual level. When it concerns a person's cognitive competencies that guide individual cultural preferences and behaviors, it is unlikely that this relation can be affected by merely a larger stock of higher educated in a specific country. Following the information processing theory, cultural participation is explained by people's cognitive competency, and hence will not be affected by the social context. So, the relation between a person's educational level, as a proxy for cognitive competency, and his/her cultural participation will not be affected by educational disparities on the national level. We then may expect that a country's level of educational expansion and/or mobility does not affect the relation between educational level and cultural participation.

However, similar to economic research on the association between education and earnings, we can develop the information processing theory further by incorporating cognitive skills in the model. More specifically, following other research disentangling cognitive and non-cognitive aspects of schooling (see e.g. Barone & Van de Werfhorst, 2011; Bowles & Gintis, 2002), it can be assumed that the net effect of education on cultural participation after controlling for cognitive skills refers to non-cognitive aspects of education.

The literacy skills that we include in our models can be assumed to capture the cognitive aspect of education very well, in particular with regard to cultural consumption. Whereas in the wage returns literature it has been questioned whether literacy skills adequately capture 'human capital' (Barone & Van de Werfhorst 2011), with regard to cultural participation it is reasonable that literacy directly affects the enjoyment of complex forms of theatre and literature. Similar to the wage returns literature, it is therefore plausible that the effect of education is strongly reduced when holding constant for literacy. Moreover, literacy is unlikely to have differential effects depending on educational distributions – literacy skills affect the enjoyment of culture independent of the number of highly qualified or upwardly mobile persons. This leads to the following hypotheses:

H3: *Literacy captures a large share of the education effect on cultural participation.*

H4: *Educational expansion and educational mobility do not affect the relation between literacy and cultural participation*.

Data and measurement

We make use of the International Adult Literacy Survey (IALS) of 1994/1998, a project of the Organization of Economic Cooperation and Development (OECD) in corporation and coordinated by Statistics Canada and the Educational Testing Service at Princeton University. The IALS suits our research questions very well, since it contains international comparative measures on individual participation in cultural activities, educational attainment, a person's literacy score and relevant control variables. The IALS gathered information of adult literacy via a large-scale and international comparative assessment, between 1994 and 1998. In total, 19 countries participated. We removed two countries from the original file, resulting in a sample of

17 countries (N2=17).[3] We selected respondents from age 25 and older, since these respondents are likely to have finished their educational careers. Furthermore, we selected respondents with valid scores on all relevant individual variables (72.1%; N1= 43,686).

We analyse highbrow cultural participation, measured by the frequency respondents *visiting cultural performances* (movie, play or concerts) and *reading books*.[4] Respondents were asked about the frequency they participated in these two specific highbrow cultural leisure activities by the following questions: "How often do you attend a movie, play or concert?" and "How often do you read a book?" Answer categories were (0) never (1) several times a year (2) monthly (3) weekly and (4) daily. Both items are common indicators of a person's highbrow cultural participation in cultural stratification research (e.g. Katz-Gerro & Jaeger, 2011; Purhonen et al., 2011; Yaish & Katz-Gerro, 2010) and match with the objectified state of cultural capital (Bourdieu, 1986; Kraaykamp & Van Eijck, 2010).

Since prior research has shown that across countries, similar years of schooling could indicate different educational levels (Barone & Van de Werfhorst 2011; Breen & Jonson, 2000), we measure *respondents' educational level* by a variable ranging from (0) primary education to (5) tertiary education.[5][6] In order to separate status signalling from cognitive competencies, we include the respondents' cognitive competence as measured by their *literacy score*. In the IALS, literacy is defined as "using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (Kirsch, 2001). In the IALS, three types of literacy are measured; prose, document and quantitative literacy.[7] As reported by Statistics Canada (Microdata User's Guide): "A person's literacy ability in each domain is

[3] Chile was removed because it was the only non-Western country in our data; for Canada we lack information on parents' education.

[4] The inclusion of movies measuring visiting cultural performances might be discussed. Going to the movies is associated with relatively low cognitive demands, wide availability and low costs (compared cultural events like theatre and classical concerts). Yet, additional (factor) analyses using the EU SILC 2006 clearly shows these three activities (visiting cultural events, cultural sites, and cinema) to form a reliable scale ($\alpha = 0.69$)

[5] We chose the current measurement of educational level because of its best model fit (most negative BIC), compared to educational level in years. The substantive findings are highly similar if years of education was used instead.

[6] In the IALS educational level is available both in years as in degrees; analysing these two measures separately shows no difference in educational effects on cultural participation.

[7] Statistics Canada defines in the microdata user's guide the following dimensions: "A) Prose literacy—the knowledge and skills needed to understand and use information from texts including editorials, news stories, poems, and fiction; B) Document literacy—the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables, and graphics; and C) Quantitative literacy—the knowledge and skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a checkbook, calculating a tip, completing an order form, or determining the amount of interest on a loan from an advertisement."

expressed by a score, which is the point on the scale at which he or she has an 80 per cent chance of successfully performing a given literacy task". Factor analyses, both explorative and confirmatory, including all three measurements showed only one dimension with an Eigen value above 1, explaining 88% of the variance. Therefore, and in line with previous research using the IALS (e.g. Green, 2001; Gesthuizen, Solga & Künster, 2011; Van de Werfhorst, 2011), we create a scale measuring overall literacy by taking the mean score of all items testing respondents' prose, document and quantitative literacy (z-standardized).

We include several control variables on the individual level that are shown to be relevant in research on leisure consumption, and, more specifically, cultural participation (see e.g. Yaish & Katz-Gerro, 2011; Kraaykamp & Van Eijck, 2010). We include respondent's *age* in categories (10 year intervals), ranging from (0) 25-34 years to (4) 65 years and older. Furthermore, we controlled for respondents' *gender* (1=female) and whether the respondent was born in the country of interview or *born abroad* (1= born abroad). Table 1 presents the descriptive statistics for all individual level variables.

A country's level of *educational expansion* is measured by the gross enrolment ratio in tertiary education (ISCED 5 and 6) in 1996, representing the general level of participation in tertiary education in a given country (UNESCO, 2011).[8] The proportion of adults with at least a university degree is also referred to as an indicator of cultural development and/or modernization (Marks, 2005; Notten & Kraaykamp, 2009). *Educational mobility* is measured as the country-specific association between parents and children's educational attainment, that we constructed based on the IALS data. For each country, the measure consists of the coefficient (unstandardized b) of parental educational level, measured as the maximum of father's and mother's educational level when predicting the respondents' educational attainment. We coded the variable educational mobility so that a higher score on this variable implies a higher level of educational mobility, corresponding with a *lower* correlation between parents and children's educational attainment (ranging from -2.35 to -0.82).[9] We measure a country's wealth by *GDP per capita* 1996, in ppp current international dollars (Worldbank, 2011). GDP per capita is a common indicator of a country's economic development, and likely captures (part of) the national spread and

[8] Since the data is gathered between 1994 and 1998, we chose 1996 as the reference year for country statistics.
[9] For reasons of interpretation we reversed the coefficient measuring the intergenerational association of education (*-1)

accessibility of cultural supply (OECD, 2006). For reasons of presentation and interpretation, all country level variables are centred to their means. In Table 2, the country variables are presented.

<Table 1 & 2 about here>

Empirical strategy

To analyse cross-national differences in the stratification in cultural participation we estimate multilevel models. With this method we simultaneously estimate differences between countries and between individual respondents (Snijders and Bosker, 1999). We first estimated a null-model with a random intercept and without predictors (not presented). The estimated variance component at the country level is small but significant (ICC books = .04; ICC visiting cultural performances = .06). Participating in cultural activities is predominantly affected by characteristics on the individual level, but there is significant variation across countries, also when accounting for individual characteristics.

Next, we estimate multivariate multilevel models with a random intercept and random as well as fixed slopes. Model 1 assumes cultural participation to vary across countries. In this model educational level is included and its effect is allowed to vary across countries (random slope). All other variables are assumed to be stable over countries (fixed). In model 2 a person's literacy score is included, which we also allow to vary across countries (random slope). Model 3 estimates interactions between the individual-level measure of education and educational expansion and mobility. Estimating these cross-level interactions means that we assume the effects of education to vary over countries (i.e. random effects). In model 4, we estimate cross-level interactions with literacy. Note that we performed additional analyses controlling for parental educational level in all models, which did not significantly interfere with our results.

To assess the potential effect of influential cases on our findings, we carried out an outlier analysis for all our models, following the procedure as suggested by Van der Meer, Te Grotenhuis and Pelzer (2010). Outliers did not affect any of the multivariate findings we present below.

Results

We start with some descriptive analyses. In Figure 1, the relation between education and cultural participation is presented for each country included in our analyses. Mean scores for book reading and visiting cultural performances are presented for each educational category. The general pattern is that when the educational effect is low for book reading, it is rather low for visiting cultural performances too. As may be expected, the different types of (highbrow) cultural participation correlate on the national level. Figure 1 predominantly shows that a higher educational level correlates quite linear with more book reading and a higher frequency of visiting cultural performances in most of the included countries. There are some exceptions: people with primary education in Norway score equally high on visiting cultural performances as people with tertiary education. In Finland and Hungary the positive linear relation between education and book reading is less clear, though still visible. Overall and across different countries, Figure 1 shows a linear positive relation between a person's educational level and frequency of book reading and visiting cultural performances. Hence, although prior research on cultural globalization and changing cultural identities suggests that products may be valued differently across countries (e.g.Katz-Gerro, 2002; Venrooij & Schmutz, 2010), our results clearly indicate that the cultural status of book reading and visiting cultural performances does not vary significantly between nations.

** Figure 1 about here**

Figure 2 presents the proportion of the effect of education on cultural participation that remains after controlling for literacy, in relation to a country's level of educational expansion[10]. Put differently, the data points represent the status-related effect of education on cultural participation. The figures clearly show that the status-element of a person's educational level on cultural participation is smaller in countries with higher rates of educational expansion. That is, with higher levels of educational expansion, the effect of education is reduced to a lower level, once controlling for literacy. This implies that in countries with a higher proportion of highly

[10] The data points are obtained from single country regressions and refer to the coefficient of education that remains when controlling for literacy, divided by the coefficient of education without controlling for literacy. A value of 1 means that education represents only status aspects, whether 0 indicates no status related (but only cognitive) effects of education on cultural participation.

educated people, the status-related aspect of education is lower. Especially the relation between education and visiting cultural performances decreases with higher levels of educational expansion, for book reading we see the same pattern, although there seems to be a bit more variation. Overall, Figure 2 indicates that education becomes less of a status marker where educational expansion is higher.

Note that there are some outliers. In Finland, the relative educational effect on visiting cultural performances is much lower (in contrast to reading). Apparently, while education expansion in Finland is at a high level, education contains few status components that are related to visiting theatres. In the United Kingdom, the US and Norway the status aspect of education on reading books is relatively low, but the educational expansion of these countries differs substantially.

** Figure 2 about here**

Figure 3 plots the relation between educational mobility and the proportion of the education effect that remains after controlling for people's literacy score. The Figure shows a rather linear and negative relation, meaning that in countries with higher educational mobility, the effect of a person's educational level on cultural participation is less pronounced. This implies that the status-related aspect of education is less important in countries where educational mobility is higher. This is in line with the status hypothesis that we formulated. However, these figures are simple bivariate plots, not taking into account the variation in individual and country level variables.

** Figure 3 about here**

Figure 3 shows some outliers, similar to Figure 2. In the US and especially Finland, the effect of education on visiting cultural performances is reduced greatly once controlling for literacy scores (in contrast to reading for Finland). Apparently, in Finland and the US, when it concerns visiting cultural performances and taking into account educational mobility, education contains much less status aspects compared with the other countries that we analyze. In the United Kingdom, the US

and Norway the status aspect of education hardly affects reading books, along the lines of both a country's educational expansion and mobility.

<Table 3 about here>

Visiting cultural performances

The results of model 1 in Table 3 show that, in line with previous cultural capital research, higher educated people more frequently visit cultural performances than the lower educated. Cultural participation is also higher among women than men. However, visiting cultural events is more frequent among the youngest age group and this is in contrast with prior (within country) studies on highbrow cultural participation (e.g. Kraaykamp & Van Eijck, 2010; Purhonen et al., 2011). An explanation for this might be that, since our measure of visiting cultural performances also includes going to the movies, younger people are more (cultural) outgoing in general (see e.g.Warde, Martens and Olsen, 1999). Model 1 also shows that respondents who are born abroad visit cultural performances significantly less often than natives. A country's level of educational inequality, as measured by the level of educational expansion and mobility does not affect a person's frequency of visiting in cultural performances. A country's GDP also seems to be irrelevant concerning cultural participation.

In model 2, literacy is added and the model shows that a person's literacy skills significantly affects visiting cultural performances, reducing the coefficient of education by about 30% in size (corroborating H3). In model 2, where the effect of education is controlled for a person's literacy skills the effect of education that we observe refers to the status-related aspects of educational achievements. Hence, model 2 shows that both status-related and cognitive aspects of education are relevant in predicting a person's frequency of visiting cultural events, like we would expect based on the cognitive and status hypothesis. Note that the effect of born abroad is still significant, but is positive once controlling for literacy score. This is a rather remarkable finding and may represent selection effects; persons belonging to the higher cultural social class (i.e. the cultural elite) are more likely to migrate.

In model 3 the cross-level interactions with a person's educational level and our measures of educational inequality are included. In model 3, we see that in countries with higher levels of educational expansion, the effect of education on visiting cultural performances is smaller. Since

this model also controls for people's literacy scores, this implies that status is less important in predicting cultural participation in countries where educational inequality is lower. This is in line with the status hypothesis (H1); the higher the proportion highly educated in a country, the less visiting cultural performances functions as a status marker. Although the direction of the effect is as we expected (H2), we do not find that educational mobility significantly affects the relation between the status-related aspect of education and visiting cultural performances. So, regardless of the level of social mobility or 'openness' in a country, the status effect of education on visiting cultural performances remains important. This might indicate that also in more mobile countries early (within family) cultural socialization is not equally spread (yet).

In Model 4 cross-level interactions with literacy score are included. Neither the interaction term with educational expansion, nor the interaction with mobility is statistically significant. In other words, the association between people's literacy score and visiting cultural performances is not dependent on the level of educational expansion and mobility. This supports the cognitive hypothesis for visiting cultural performances (H4): a person's literacy competencies are highly relevant for participation in highbrow cultural events because of the cognitive skills these activities require. Country-level educational inequalities, however, do not matter for the relation between cognitive capacities (i.e. literacy score) and cultural participation.

<Table 4 about here>

Reading books

In Table 4, we estimate status-related and cognitive aspects of educational level on book reading. Model 1 reveals a positive and statistically significant effect of education on book reading, which is in line with previous cultural capital research. Model 1 also shows that the intensity of book reading increases with age and that women tend to read more frequently than men. Although a country's level of educational expansion and GDP is not relevant for book reading, educational mobility significantly and positively affects an individual's book reading frequency. In countries where educational mobility is higher (indicating a more open society), people tend to read more frequently than in more closed countries. An explanation for this finding can be that we observe here that in more open societies, with higher levels of educational mobility (and a dominant role of reading in school curricula), the composition of readers changes and also includes children from former non-reading (lower SES) parents and thus becomes more heterogeneous (see also

Van Eijck, 1999). An alternative explanation, and perhaps more suitable in this context, is that in more open and egalitarian (meritocratic) societies information and knowledge is more relevant or even inevitable in everyday life and, moreover, widely accessible (Rogers, 1995). This is likely to stimulate people to read and to develop their information processing skills. Controlled for all other individual and country-level variables, a country's level of educational expansion and GDP has no statistically significant effect on book reading.

In model 2, a person's literacy score is included, which proves to be highly statistically significant in predicting reading behavior. The effect of education is statistically significant as well, indicating that on the individual level, both status and cognitive aspects of education are relevant for book reading. In line with our H3, however, the educational effect is substantially reduced once controlling for an individuals' literacy score. Last, respondents that are born abroad read more books than natives. Like with visiting cultural performances, this remarkable finding might represent selection effects.

In model 3 we again include cross-level interactions. In line with our second hypothesis, the positive effect of educational attainment on reading is smaller in countries with higher levels of educational mobility. Hence, in line with hypothesis 2 we find that in countries with higher levels of educational mobility, the status-related aspects of a person's educational level are less relevant in deciding to read books. In line with Bourdieu's cultural capital theory, we find that book reading is more a status marker for the higher educated in more closed or unequal societies. We also find a negative and statistically significant cross-level interaction between educational expansion and educational attainment (in line with H1). This implies that status-related educational effects on book reading become less relevant in countries with a higher proportion of highly educated people. Our findings corroborate H1 and H2 and thus support the hypothesis of the status-related aspects of education when it comes to book reading. In countries with higher levels of educational expansion and educational mobility, our findings show that a person's educational level becomes less relevant for book reading. In other words; cultural participation as in book reading functions as a significant marker of a person's social status, but this is less relevant in more egalitarian societies.

In model 4 the interactions with literacy score are estimated. The results clearly support the cognitive hypothesis (H4); the relation between the cognitive aspects of education, as in a

person's literacy score, and book reading is not dependent on a country's level of mobility and educational expansion

Conclusion & Discussion

The main question underlying this study is whether cultural consumption is representing social status aspects or cognitive processing capacities. To answer this question we study the educational differentiation in cultural participation, and how this is affected by educational disparity or distributions on the national level. Two different theories may explain people's interest in cultural participation. First, participation in high culture provides social status to individuals, and secondly, it fulfills a personal desire for complex cognitive stimuli. Social stratification in cultural participation can then be understood as a result of differences in the amount of social status confirmation that is achieved by participation (Bourdieu, 1984), or as a result of the social differences in the complexity of information that people seek to process with cultural consumption (Ganzeboom 1982, 1989). We analysed these status and cognitive aspects of cultural participation by including a person's literacy skills representing a person's cognitive abilities, next to a person's educational level, which then represents the net status-related (non-cognitive) part of education. We applied multilevel modelling on the IALS data including 17 countries which provides information on both a person's educational level and literacy score, including. Our findings show that in countries with lower levels of educational inequality (i.e. lower levels of educational expansion and mobility), cultural participation generates holds less status for the higher educated, confirming the reduced status incentives of cultural participation. Whereas the relation between a person's literacy skills (i.e. the cognitive aspect of education) and cultural participation remains stable, regardless of a country's educational inequality. This corroborates the cognitive aspect of the relation between educational level and cultural participation. However, the status-related aspect of cultural participation seems dominant.

We here interpret the non-cognitive aspect of educational effects on cultural participation as net status effects. However, this point of view may be discussed. For instance, part of this effect could relate to income, or may run via social networks such as peers or partners. Income appears less relevant in cultural capital research, especially when taking educational level and/or social status into account (Chan & Goldthorpe, 2007a; Van Eijck, 1999). Yet, cultural participation is found to affect a person's network and vice versa (see e.g Lizardo, 2006; Upright, 2004). We

certainly acknowledge these influences. But since we control for a person's cognitive skills, such network influences are most likely related to group identity and group inclusion (or exclusion), and thus status aspects. For instance, a person's decision to visit ballet relates to his/her intellectual competencies, but when taken these into account, it most likely is a joined activity and an expression of a specific taste, that is valued among the (status) group someone belongs to.
In this study we also encountered some limitations. First, our measurement of visiting cultural performances contains several events, which are not all conceptually defined as highbrow. For instance, classical concerts differ significantly from pop concerts and visiting movies in this respect. Also, we now only measure the frequency of book reading, since information about content or genre is not available. A more detailed measurement of cultural activities could be more distinctive. This however also implies that now we may somewhat underestimate the effect of education on cultural participation. Second, the IALS is the most suitable dataset to answer our research question, since it enables us to disentangle the status and cognitive aspects of education in relation to cultural participation. However, more recent data that also includes these aspects could provide more insight in developments in the past decade. Since social cleavages are also found in 'new' cultural and media consumption patterns (see e.g. DiMaggio et al., 2004; Notten & Kraaykamp, 2009), it would be interesting to unravel status and cognitive motivations for these forms of cultural participation as well.

Above all, this study shows that the status-based explanation of inequality in cultural participation is strongly dependent on distributional changes in education, whereas the cognitive explanation is far less dependent on these distributional variations. In particular, when educational distributions change, the status (i.e. non-cognitive) explanation of education effects are strongly modified, in the sense that educational expansion and intergenerational social mobility strongly reduce the status-based element of education. This finding is directly related to the status perspective on inequality effects presented by Wilkinson and Pickett (2009). Although their work is about income inequality, we agree that, if distributions change, so too does the status element of stratifying variables such as education. Cultural consumption strongly depends on a person's cognitive abilities and, especially, status-related incentives. However, when the social context becomes less stratified, high cultural consumption loses its function as a valuable status-marker.

References

Alderson, A. Junisbai, A. and Heacock, I. (2007). Social status and cultural consumption in the United States. Poetics, 35: 191-212

Allmendinger, J. 1989. Educational systems and labor market outcomes. European Sociological Review, 5 (3): 231-250

Barone, C. and Van de Werfhorst, H.G. (2011). Education, cognitive skills and earnings in comparative perspective. *International Sociology*, 26 (4): 483-502.

Beck, U. (1992). Risk society: Towards a new modernity. London: Sage & Sons.

Becker, G.S. 1996. *Accounting for Tastes*. Cambridge, Mass.: Harvard University Press.

Blau, P. and Duncan, O. (1967). The American Occupational Structure. New York: John Wiley

Bourdieu, P. (1984 [1979]). *Distinction: A social critique of the judgement in taste*. Londen: Routledge.

Bourdieu, P.1986. The forms of Capital, in J.E. Richardson (ed.). *Handbook of Theory of Research for the Sociology of Education*, pp. 241-58, Westport: Greenword Press,

Bourdieu, Pierre, and Jean Claude Passeron. 1990 [1977]. *Reproduction in Education, Society, and Culture*. London ; Newbury Park, Calif.: Sage in association with Theory Culture & Society Dept. of Administrative and Social Studies Teesside Polytechnic.

Bowles, S., and Gintis, H. (2002). Schooling in capitalist America revisited. *Sociology of Education*, 75 (1): 1-18.

Breen, Richard and Jan O. Jonsson. 2000. "Analyzing Educational Careers: A Multinomial Transition Model." *American Sociological Review* 65:754-772.

Bryson, B. (1997). What about the Univores? Musical Disikes and Group-Based Indentity Construction among Americans with Low Levels of Education. Poetics, 25: 141-56.

Castells, M. (2001). *The internet galaxy: Reflections on the internet, business and society*. New York: Oxford University Press.

Chan, Tak Wing, and John H. Goldthorpe. (2007a). “Social Status and Newspaper Readership.” *American Journal of Sociology*, 112 (4): 1095-1134.

Chan, Tak Wing, and John H. Goldthorpe. 2007b. “Social stratification and cultural consumption: Music in England.” *European Sociological Review*, 23: 1-19.

Chan, Tak Wing, and John H. Goldthorpe. 2007c. "Class and Status: The Conceptual Distinction and its Empirical Relevance." *American Sociological Review* 72: 512-532.

Collins, R. 1979. *The Credential Society: An historical sociology of education and stratification.* New York: Academic Press

De Graaf, P. M. (1986). The impact of financial and cultural resources on educational attainment in the Netherlands. *Sociology of Education,* 59: 237-246.

De Graaf, N.D., & De Graaf, P.M. (2002). Formal and popular dimensions of cultural capital: Effects on children's educational attainment. *The Netherlands' journal of social sciences*, 38: 167-186.

De Graaf, N.D., De Graaf, P.M., & Kraaykamp, G. (2000). Parental cultural capital and educational attainment in the Netherlands: A refinement of the cultural capital perspective. *Sociology of Education*, 73: 92-111.

DiMaggio, P. (1982). Cultural capital and social success: The impact of status culture participation on the grades of high school students. *American Sociological Review,* 47: 189-201.

DiMaggio, Paul, and Michael Useem. 1978. "Social class and arts consumption. The origins and consequences of class differences in exposure to the arts in America." *Theory and Society*, 5 (2): 141-161.
DiMaggio, Paul. 1987. "Classification in art." *American Sociological Review*, 52 (4): 440-455.
DiMaggio, P. and Mukhtuar, T. 2004. Arts participation as cultural capital in the United States, 1982-2002; Signs of decline? Poetics, 32: 169-194.
DiMaggio, P., Hargittai, E., Celeste, C., and Shafer, S. 2004. From Unequal Access to Differentiated Use. In Neckerman, K. (Ed). Social Inequality, New York: Rusell Sage Foundation, pp. 355-400
Erickson, B.H. 1996. Culture, class and connections. American Journal of Sociology, 102, 1, 217-251
Evans, M.D.R., Kelley, J., Dikora, J. & Treiman, D.J. 2010. "Family scholarly culture and educational success: books and schooling in 27 nations". *Research in Social Stratification and Mobility*, 28: 171-197.
Farkas, George. 1996. "*Human capital or cultural capital? Ethnicity and poverty groups in an urban school district."* New York: Aldine de Gruyter.
Ganzeboom, Harry. 1982. Explaining differential participation in high-cultural activities: A confrontation of information-processing and status seeking theories. In Werner, R. (Ed.), *Theoretical Models and Empirical Analyses* (186-205), E.S. Publications, Utrecht.
Ganzeboom, Harry. 1989. *Cultuurdeelname in Nederland*, Assen: Van Gorcum.
Gesthuizen, Maurice. 2006. "How Socially Committed Are the Dutch Low-Educated? Historical Trends, Life-Course Changes, and Two Explanations for Educational Differences." *European Sociological Review* 22:91-105.
Gesthuizen, Maurice, Heike Solga, and Ralf Künster. 2011. "Context Matters: Economic Marginalization of Low-Educated Workers in Cross-National Perspective." *European Sociological Review* 27:264-280.
Green, D. 2001. "Literacy Skills, Non-Cognitive Skills and Earnings: An Economist's Perspective". http://qed.econ.queensu.ca/pub/jdi/deutsch/edu_conf/Green.pdf
Goldberg, A. 2011. "Mapping shared understandings using relational class analysis: The case of the cultural omnivore re-examined." *American Journal of Sociology*, 5:1397-1436.
Holt, D.B. 1997. "Distinction in America? Recovering Bourdieu's theory of tastes from its critics." *Poetics*, 25: 92-120.
Katz-Gerro, T. 1999. Cultural consumption and social stratification: leisure activities, musical tastes, and social location. *Sociological Perspectives*, 42 (4): 627-646.
Katz-Gerro, T. 2002. Highbrow cultural consumption and class distinction in Italy, Israel, West Germany, Sweden and the United States. *Social Forces*, 81 (1): 207-229.
Katz-Gerro, T. and Meier Jaeger, M. 2011. Top of the pops, ascend of the omnivores, defeat of the couch potatoes: Cultural consumption profiles in Denmark 1975-2004. *European Sociological Review*, advance access.
Kerckhoff, 2001
Kerckhoff, A.C., Raudenbusch, S. and Glennie, E. (2001). Education, cognitive skills, and labor force outcomes. Sociology of Education, 74: 1-24.
Kirsch, 2001 (handbook/guide)
Kirsch, I.S. (2003). Measuring literacy in IALS: a construct-centered approach. International Journal of Educational Research, 39: 181-190.
Kraaykamp. G., & Van Eijck (2010). The intergenerational reproduction of cultural capital: A threefold perspective. *Social Forces*, 89: 209-232.

Knulst, W. 1992. An elitist rearguard: an effort to explain changes in the extent and composition of the arts audience in the age of television. *The Netherlands' Journal of Social Science,* 28: 72-94.

Lamont, M. 1992. *Money, morals and manners. The culture of the French and American upper-middle class.* Chicago: University of Chicago Press.

Lamont, M., & Lareau, A. 1988. Cultural capital: allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, 6: 153-168.

Lareau, A. 1987. Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education,* 60: 73-85.

Lareau, A. 2003. *Unequal childhoods: Class, race and family life*. Berkeley: University of California Press.

Lareau, A. and Weininger, E. B. 2004. Cultural capital in educational research: a critical assessment. In Swartz, D.L. and Zolberg, V. L. (Eds.), After Bourdieu: Influence, Critique, Elaboration. The Netherlands, Springer, pp. 105-144.

Lena, Jennifer C.and Richard A. Peterson. 2008. "Classification as Culture: Types and Trajectories of Music Genres." American Sociological Review, 73 697-718

Lipset, S.M. and R. Bendix. 1959. Social Mobility in Industrial Society. London: Heinemann.

Lizardo, O. 2006. "How Cultural Tastes Shape Personal Networks." *American Sociological Review*, 71: 778-807

López-Sintas, J. and Tally Katz-Gerro. 2005. "From exclusive to inclusive elitists and further: twenty years of omnivourness and cultural diversity in arts participation in the USA." *Poetics*, 33: 299-319

Marks, Gary N. 2005. "Cross-National Differences and Accounting for Social Class Inequalities in Education." International Sociology, 2005, Vol 20(4): 483–505.

Notten, N., & Kraaykamp, G. (2009). Home media and science performance: A cross-national study. *Educational Research and Evaluation*, 15: 367-384.

Notten, N. & Kraaykamp, G. (2010). Parental media socialization and educational attainment: resource or disadvantage? *Research in Social Stratification and Mobility*, 28: 453-464.

OECD, 2006. Information retrieved from www.oecd.org (http://www.oecd.org/dataoecd/26/51/37257281.pdf)

Park, H. (2008). Home literacy environments and children's reading performance: a comparative study of 25 countries. *Educational Research and Evaluation,*14: 489-505.

Peterson, R.A., & Kern, R.M. (1996). Changing highbrow taste: From snob to omnivore. *American Sociological Review*, 61: 900-907.

Peterson, R.A., and Simkus, A. (1992). How musical tastes mark occupational status groups. In Lamont, M. and Fournier, M. (eds.), Cultivating Differences. Chicago: University of Chicago Press: 152-168.

Pfeffer, F.T. (2008). Persistent Inequality in Educational Attainment and its Institutional Context. European Sociological Review, 24 (5): 543-565..

Purhonen, S., Gronow, J. and Rahkonen, K. 2011. Highbrow culture in Finland: Knowledge, taste and participation. *Acta Sociologica*, 54 (4): 385-402

Rijken, S. 1999. Educational expansion and status attainment: A cross-national and over-time comparison. ICS, Dissertation.

Rogers, E. M. (1995). *Diffusion of Innovations*. New York: The Free Press.

Scitovsky, Tibor. 1976. *The joyless economy. An inquiry into human satisfaction and consumer dissatisfaction*. London/New York/Toronto: Oxford University Press.

Snijders, T.A.B., & Bosker, R.J. (1999). *Multilevel analysis. An introduction to basic and advanced multilevel modeling*. Londen: Sage Publicatoins

Solga, Heike. 2002. "'Stigmatization by Negative Selection': Explaining Less-Educated People's Decreasing Employment Opportunities." *European Sociological Review* 18:159-178.

Ultee, Wout C., Ronald Batenburg, and Harry B. G. Ganzeboom. 1993. "Cultural inequalities in cross-national perspective." Pp. 173-189 in *Cultural Participation: Trends Since the Middle Ages*, edited by Ann Rigney and Douwe Fokkema. Amsterdam/Philadelphia: John Benjamins Publishing.

UNESCO. 2011. Information retrieved from www.unesco.org, November 2011.

Van Eijk, Koen. 1997. The impact of family background and educational attainment on cultural consumption: A sibling analysis. *Poetics,* 25: 195-224.

Van Eijk, Koen. 1999. Socialization, Education and Lifestyle: How Social Mobility Increases the Cultural Heterogeneity of Status Groups. Poetics, 26: 309-28.

Van Eijk, Koen. 2001. Social Differentiation in Musical Taste Patterns. Social Forces (2001) 79(3): 1163-1185

Van Venrooij, A. and Schmutz, V. 2010. The evaluation of popular music in the United States, Germany and the Netherlands: A comparison of the use of high art and popular aesthetic criteria. *Cultural sociology*, 4 (3): 395-421

Van der Meer, T., M. Te Grotenhuis & B. Pelzer. (2010), 'Influential Cases in Multilevel Modeling', *American Sociological Review* 75 (1): 173-178.

Van de Werfhorst, H. G. (2010). Cultural capital: strengths, weaknesses and two advancements. *British Journal of Sociology of Education*, 31: 157-169.

Van de Werfhorst, H. G. 2011. Skill and education effects on earnings in 18 countries: The role of national educational institutions. *Social Science Research*, 40: 1078-1090.

Warde, A. 1994. "Consumption, identity-formation and uncertainty." *Sociology*, 28 (4): 877-898.

Warde, A., Martens, L. and Olsen, W. (1999). Consumption and the problem of variety: Cultural omnivorousness, social distinction and dining out. *Sociology*, 33 (1): 105-127.

Weiss, A. (1995). Human capital vs. signaling explanations of wages. Journal of Economic Perspectives, 9: 133-154.

Wilkinson, R.G. & Pickett, K.E. 2009. *The spirit level. Why more equal societies almost always do better*. Allen Lane, London.

Worldbank. 2011. Information retrieved from www.worldbank.org, December 2011.

Yaish, M., & Katz-Gerro, T. (2010). Disentangling 'Cultural Capital': The consequences of cultural and economic resources for taste and participation. *European Sociological Review*, Advance Access, doi: 10.1093/esr/jcq056.

TABLES and FIGURES

Figure 1. The relation between educational level and cultural participation, by country.

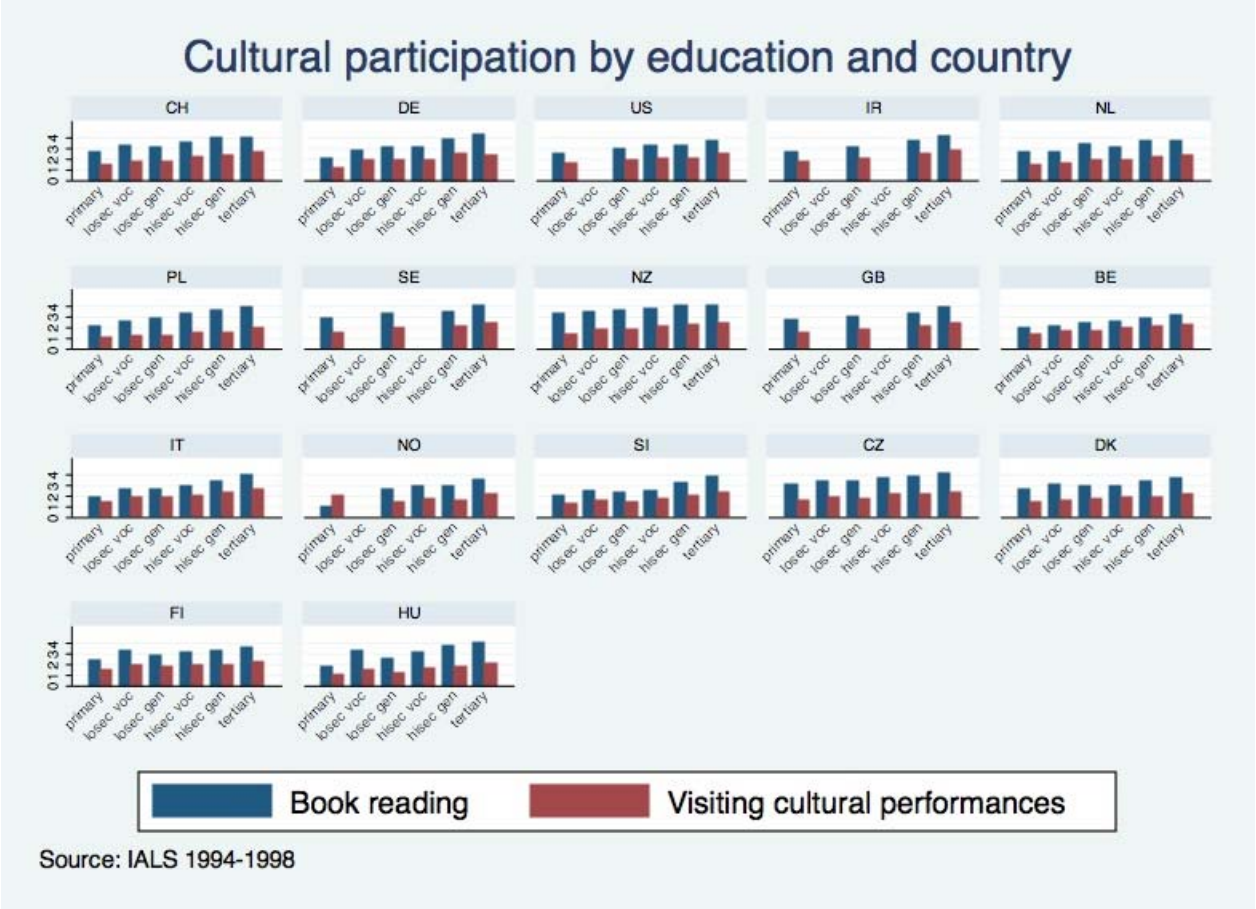

Figure 2. Proportion of education effect that remains after controlling for literacy score, by educational expansion.

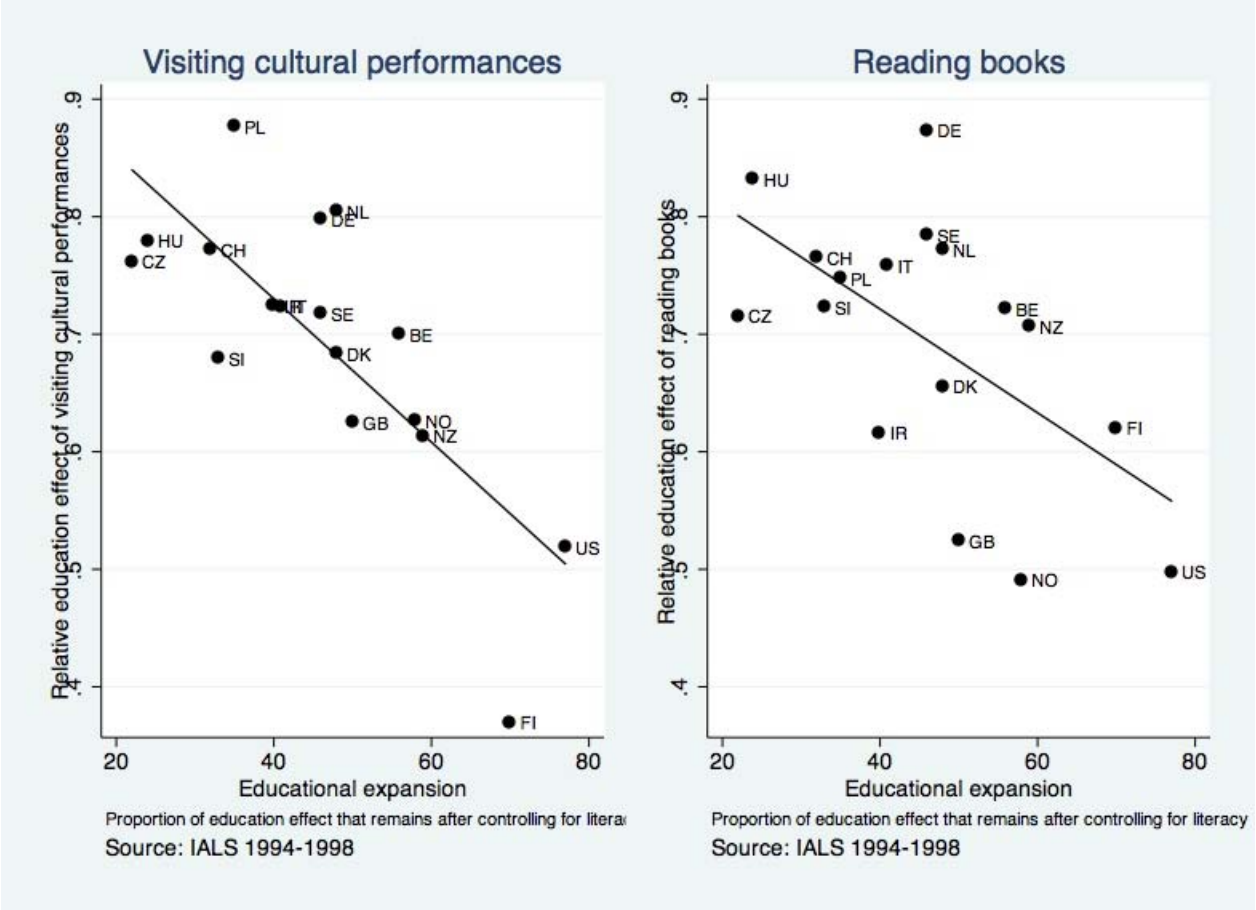

Figure 3. Proportion of education effect that remains after controlling for literacy score, by educational mobility.

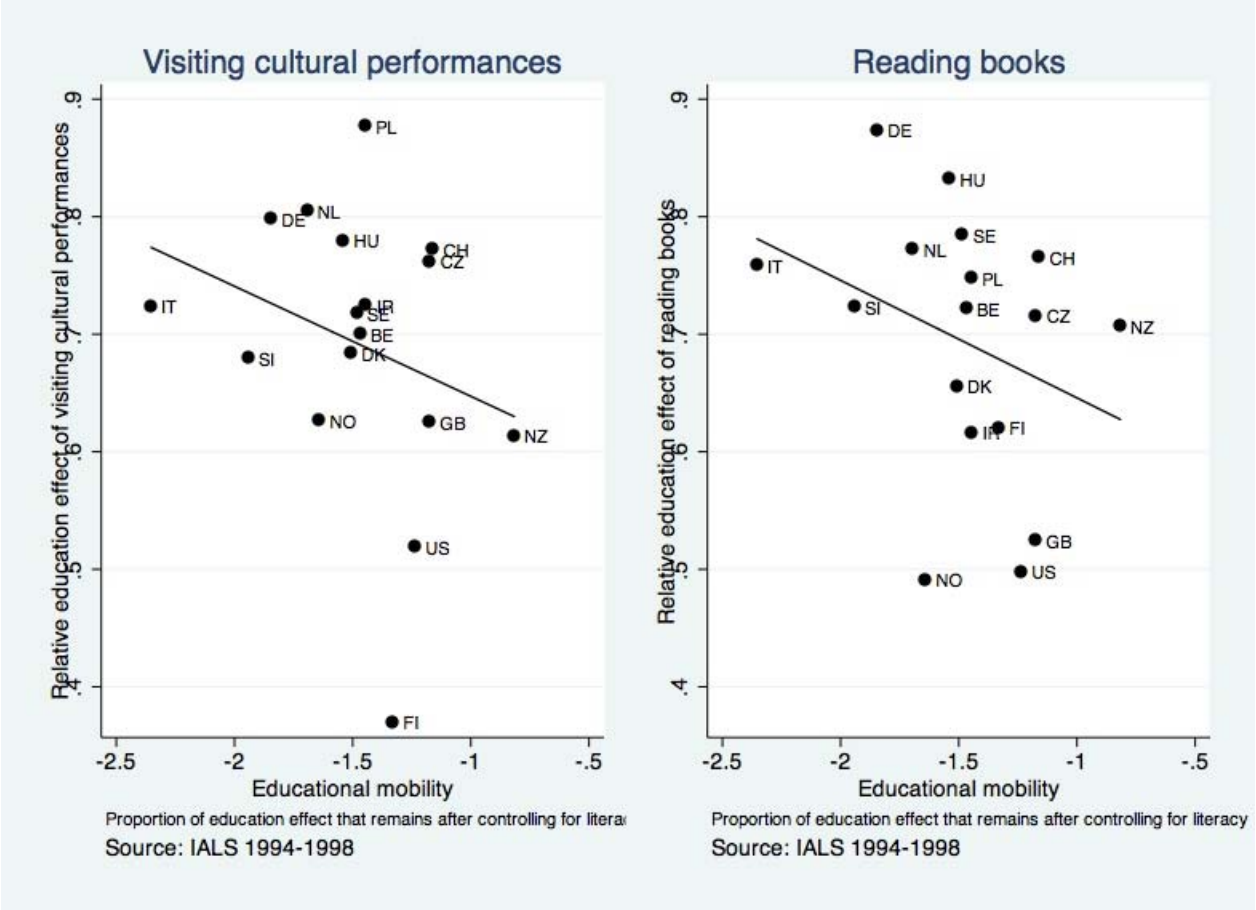

Table 1. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Dependent variables				
Book reading	2.23	1.48	0	4
Visiting cultural performances	0.94	0.83	0	4
Individual-level variables				
Educational attainment	2.99	1.65	0	5
Gender (female=1)	0.54		0	1
Age	43.57	11.70	25	94
Born abroad	0.08		0	1
Literacy score (z-score on total sample)	0.05	0.97	-4.11	2.84
Country-level variables				
Educational mobility	-1.44	0.35	-2.35	-0.82
Educational expansion	46.27	14.16	22	77
GDP per capita PPP (1996)	20333.17	5593.53	8050	28772

Source: IALS 1994-1998 N1=43.686 N2=17

Table 2. Descriptive statistics macro variables.

Country	Educational mobility (a)	GDP per capita ppp (b)	Educational expansion: Percentage participation in higher education (c)
Switzerland (CH)	-1.16	27,438	32
Germany (DE)	-1.84	23,049	46
United States (US)	-1.23	28,772	77
Ireland (IR)	-1.44	19,510	40
Netherlands (NL)	-1.69	22,652	48
Poland (PL)	-1.44	8,050	35
Sweden (SE)	-1.48	22,647	46
New Zealand (NZ)	-0.82	18,076	59
Great Britain (GB)	-1.17	20,936	50
Belgium (BE)	-1.47	22,790	56
Italy (IT)	-2.35	21,799	41
Norway (NO)	-1.64	26,039	58
Slovenia (SI)	-1.94	13,715	33
Czech Republic (CZ)	-1.17	13,643	22
Denmark (DK)	-1.51	24,049	48
Finland (FI)	-1.33	19,242	70
Hungary (HU)	-1.54	9,134	24

(a) Regression coefficient of parents' education on years of schooling (IALS)
(b) Source: Worldbank, 2011
(c) Source: Unesco, 2011

Table 3. Multilevel regression predicting visiting cultural performances, n2=17, n1=43,730.

	Model 1		Model 2		Model 3		Model 4	
	b	se	b	se	b	se	b	se
Educational level	.159***	(.008)	.111***	(.007)	.109***	(.005)	.110***	(.008)
Literacy score			.172***	(.010)	.172***	(.011)	.172***	(.010)
Educational mobility x education					-.025	(.014)		
Educational expansion x education					-.001***	(.000)		
Educational mobility x literacy							.010	(.028)
Educational expansion x literacy							.001	(.001)
Educational mobility	.205	(.142)	.130	(.127)	.141	(.125)	.130	(.128)
Educational expansion	-.001	(.004)	.001	(.004)	.001	(.004)	.001	(.004)
GDP per capita ppp, $1000s	.018	(.010)	.014	(.009)	.016	(.009)	.014	(.009)
Gender (female=1)	.024***	(.007)	.035***	(.007)	.035***	(.007)	.035***	(.007)
Born abroad	-.062***	(.014)	.029*	(.014)	.030*	(.014)	.030*	(.014)
Age (25-34 years= ref)	ref.		ref.		ref.		ref.	
35-44 years	-.229***	(.010)	-.220***	(.009)	-.220***	(.009)	-.220***	(.009)
45-54 years	-.292***	(.010)	-.263***	(.010)	-.263***	(.010)	-.263***	(.010)
55-64 years	-.374***	(.011)	-.316***	(.011)	-.316***	(.011)	-.316***	(.011)
65+ years	-.456***	(.025)	-.362***	(.025)	-.360***	(.025)	-.361***	(.025)
Constant	.679***	(.048)	.773***	(.044)	.775***	(.043)	.773***	(.044)
Variance components (a)								
variance literacy slope			0.0013578		0.0014649		0.0010874	
Variance education slope	0.0010320		0.0007751		0.0002716		0.0008273	
Country-level variance	0.0367228		0.0291763		0.0278201		0.0294116	
Individual-level variance	0.5476849		0.5313618		0.5313562		0.5313472	
Log-likelihood	-48952.5		-48300.4		-48293.2		-48298.9	

* p<0.05, ** p<0.01, *** p<0.001, two-tailed tests.
(a) All variances significant at p <0.05
Source: IALS 1994-1998

Table 4. Multilevel regression predicting reading books, n2=17, n1=43,730.

	Model 1		Model 2		Model 3		Model 4	
	b	se	b	se	b	se	b	se
Educational level	.291***	(.018)	.201***	(.018)	.190***	(.010)	.200***	(.018)
Literacy score			.316***	(.016)	.329***	(.009)	.315***	(.016)
Educational mobility x education					-.122***	(.030)		
Educational expansion x education					-.002**	(.001)		
Educational mobility x literacy							.028	(.045)
Educational expansion x literacy							.001	(.001)
Educational mobility	.919***	(.201)	.784***	(.155)	.785***	(.154)	.777***	(.156)
Educational expansion	-.005	(.006)	-.002	(.005)	-.001	(.005)	-.002	(.005)
GDP per capita ppp, $1000s	.014	(.015)	.002	(.011)	.000	(.011)	.002	(.011)
Gender (female=1)	.573***	(.013)	.597***	(.013)	.597***	(.013)	.597***	(.013)
Born abroad	.018	(.025)	.177***	(.025)	.185***	(.025)	.177***	(.025)
Age (25-34 = ref)	ref.		ref.		ref.		ref.	
35-44 years.	.081***	(.017)	.098***	(.017)	.099***	(.017)	.098***	(.017)
45-54 years	.109***	(.018)	.164***	(.018)	.166***	(.018)	.164***	(.018)
55-64 years	.197***	(.020)	.309***	(.020)	.310***	(.020)	.309***	(.020)
65+ years	.375***	(.045)	.543***	(.045)	.565***	(.044)	.544***	(.045)
Constant	.990***	(.069)	1.171***	(.054)	1.177***	(.054)	1.171***	(.054)
Variance components (a)								
variance literacy slope			0.0048026		0.0027525		0.0026505	
Variance education slope	0.0053031		0.0027245		0.0011867		0.0047882	
Country-level variance	0.0726576		0.0411691		0.0394319		0.0414033	
Individual-level variance	1.823.197		1.762.292		176.233		1.762.281	
Log-likelihood	-75246.4		-74508.7		-74498.6		-74508.4	

* p<0.05, ** p<0.01, *** p<0.001, two-tailed tests.
(a) All variances significant at p <0.05
Source: IALS 1994-1998